19981016.ba v02_n260.bam.981016 v02_n261.bam.981016

>From ???@??? Sat Oct 17 01:37:53 1998
Message-Id: <199810161349.IAA04720@sco.theporch.com>
Date: Fri, 16 Oct 1998 08:47:33 CDT
Subject: BOATANCHORS digest 2260

BOATANCHORS Digest 2260

Topics covered in this issue include:

1) Re: Forced air cooling of tubes
by "Lawrence R. Ware" <lrware@pipeline.com>
2) Re: Forced air cooling of tubes
by Scott Robinson <spr@earthlink.net>
3) HRO-60 Wanted
by Sandy Gerli <angerli@esslink.com>
4) How should I begin..?
by Jim Lyle <jlyle@netcom.com>
5) Re: Forced air cooling of tubes
by Al Klase <skywaves@bw.webex.net>
6) POOF...
by "Rhett T. George" <rtg@ee.duke.edu>
7) Philco dwg needed
by Bob Roehrig <broehrig@admin.aurora.edu>
8) Re: Forced air cooling of tubes
by David Jordan <wa3gin@erols.com>
9) CU-168 multicoupler
by David Ross <ross@hypertools.com>
10) Info fm Radio Handbook,11th or 12th ed.
by Mike Maloney <ac5p@ionet.net>
11) 6J8 needed
by Bob Roehrig <broehrig@admin.aurora.edu>
12) R-360 and Clegg Cruiser?
by thompson@mindspring.com
13) Re: Forced air cooling of tubes
by Sandy W5TVW <ebjr@worldnet.att.net>
14) Chicago Boat Anchors
by Andre Guibert <aguibert@sympatico.ca>
15) Re: RECEIVER R-22 INFO NEEDED
by Ken Corwin <kenc2@pacbell.net>
16) Re: SP600 question / problem
by "Jim Carrington" <jcall@sirius.com>
17) Re: Forced air cooling of SP-600's
by "Arden Allen" <gumbear@pacbell.net>
18) Drake that went poof!
by Jim Lyle <jlyle@netcom.com>
19) Re: SP600 question / problem

by Kevin Pease <hamradio@mm1001.theporch.com>
20) Re: Forced air cooling of tubes

by Bill Jarvis <maestro@cix.co.uk>
21) Re: SP600 question / problem

by Bill Jarvis <maestro@cix.co.uk>
22) How Noisy are Solid-State DC-DC Vibrators
by "Don Buska" <d.buska@aaiate.com>
23) 866's Away!
by Don <71333.144@compuserve.com>
24) ntg:EM84
by Maurice Weinschenker <morry@ix.netcom.com>

Message-Id: <3.0.5.32.19981015132715.008a4970@pop.pipeline.com>
Date: Thu, 15 Oct 1998 13:27:15 +0000
To: Old Tube Radios <boatanchors@theporch.com>
From: "Lawrence R. Ware" <lrware@pipeline.com>
Subject: Re: Forced air cooling of tubes
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

At 12:26 10/15/1998 -0500, Bill Hawkins wrote:
>Ah, looks like we have a hot topic. :-)
<ouch!> :-)

>There oughtta be enough errors in that to bring at least one
>correction ...

Naw, sounds fine to me. A pretty good explanation of a very complex subject. Along with Bobbie's notes some good information has been passed along.

Query for the group:
Does a prototypical air cooled power tube have a suggested operating temperature range? I recall for the 4CX250 family Eimac states a maximum operating temp. But do not recall a minimum.

Would it be safe to conclude:
(With the exception of mercury rectifiers (866, etc.) and other special purpose tubes, which need to be heated to operating temp. before use.)
That running the tube as close to ambient as practical is a *good thing*? For receiver tubes this seems to be almost common sense, but I wonder if other issues related to transmitter tube performance have to be considered?
I recall the 4CX250 line is rated for about 250W continuous plate

dissipation, at rated airflow (cooling.) If I can reduce the
plate temp. by increasing cooling, (more or colder air) can the
plate dissipation then be pushed that much harder?
(I know I'm simplifying a lot here folks, for the sake of
argument, lets ignore pressure drops, air turbulence, and some
of the other gotcha's for now.)
-Larry

-Larry Ware
lrware@pipeline.com
Orlando, Florida

Message-ID: <36264D1D.33F4C6A7@earthlink.net>
Date: Thu, 15 Oct 1998 12:29:33 -0700
From: Scott Robinson <spr@earthlink.net>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
CC: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Forced air cooling of tubes
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

Billy Wiggins wrote:
>

> In our race cars we remove the center of the thermostat only to restrict
> the water flow some. The theroy behind this was that the water flowed so
> fast that it did not absorb the heat. Seemed to worked.

Anad Scott sez;

As I understand matters, the reason for needing a partial flow
restriction at hte thermostat position in the cooling plumbing is
nto that too much flow reduces cooling; it's to keep the water
pump from cavitating and losing its pumping ability at high RPM.
More flow means more cooling essentially always, I think, but the
pump has to work porperly to make the flow happen.

Regards,

--
Scott Robinson
spr@earthlink.net

Junque is GOOD for you!

Message-ID: <36265A89.E623D061@esslink.com>
Date: Thu, 15 Oct 1998 16:26:49 -0400
From: Sandy Gerli <angerli@esslink.com>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
Subject: HRO-60 Wanted
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

Hi,

WANTED: HRO-60 in good working condx. with any coils.

73,

--
Sandy Gerli, AC1Y
500 Country Club Road
Avon, CT 06001-2406
(860) 675-5566
E-Mail: angerli@esslink.com

Life Member: ARRL, QCWA
Charter Member: Collins Collectors Association

"It is better to remain silent and be thought a fool,
Than to speak up and remove all doubt..." - Mark Twain

From: Jim Lyle <jlyle@netcom.com>
Message-Id: <199810152041.NAA19947@netcom18.netcom.com>
Subject: How should I begin..?
To: Old Tube Radios <boatanchors@theporch.com>
Date: Thu, 15 Oct 1998 13:41:52 -0700 (PDT)
MIME-Version: 1.0
Content-Type: text/plain; charset=US-ASCII
Content-Transfer-Encoding: 7bit

Hello;

My brother bought a Drake RX-2B a few years ago. I gave it a quick going over, and all appeared to be in order. He used it for a few weeks without incident and then POOF... apparently fried something in the transmitter. I don't know what he did (operator error is a distinct possibility), and he was a bit unsure about what the symptoms were (bright flash, smoke, bad smell).

I want to take a stab at fixing this now, though most of my experience is with receivers... transmitters give me the willies. I've taken a cursory glance at it and don't SEE anything wrong. I don't want to plug anything in though until I have some better idea of what I'm doing.

Any suggestions? Hints? Do's and Dont's?

--
Jim Lyle

jlyle@netcom.COM

http://www.troubadortech.com/jlyle/

Message-ID: <3626603D.19E01FD5@bw.webex.net>
Date: Thu, 15 Oct 1998 16:51:09 -0400
From: Al Klase <skywaves@bw.webex.net>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
CC: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Forced air cooling of tubes
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

Are Thwatts the product of Thamps and Thohms?

Bill Jarvis wrote:
>
> In 1955 when we were between 1 and 2 years from what used to be called "A-level", we had a booklet about "thvolts, thamps and thohms".
>
> Thamps were identical with watts (a rate of flow of heat).
>
> Thvolts were temperature differences in kelvin (or Celsius).
>
> Thohms could be added, for heat conductors in series (a copper cylinder of low thohms, and a jacket of high thohms); or for heat conductors in parallel (a wall and a window) you had to add the thamps, or 1/thohms.
>
> It made calculations on house walls incredibly easy. I suspect it did not catch on because everyone got the giggles.
>
> ============   =====   =====   BILL J.   =====   =====   ============
> GM8APX, qthr   Edinburgh, Scotland, UK
>
>   Hodie adsit, cras absit

>
> Net-Tamer V 1.12 Beta - Registered

--
Al Klase - N3FRQ
skywaves@bw.webex.net
Flemington, NJ 08822
Web Page: http://www.webex.net/~skywaves/home.htm

From: "Rhett T. George" <rtg@ee.duke.edu>
Date: Thu, 15 Oct 1998 17:27:00 -0400
Message-Id: <199810152127.RAA17095@dsil10.ee.duke.edu>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: POOF...

- Greetings -

Jim Lyle asked a great question about alternatives to firing up a half-dead rig. I am a strong advocate of lamp bulbs. How so?

With the rectifiers pulled, I supply the line power to the unit under test with a lamp in series. Choice of wattage depends on what the unit is. Assuming that proceeding is in order, I replace the rectifiers and remove the load. I may bring up the line voltage thru a variable transformer so as not to exceed the rated voltage on the filter caps, but I keep the lamp in series. If all looks good, I try opening the B+ circuit and put a lamp in series there, possibly a 250 V bulb. Bring the voltage up again and see what happens.

Losing a bulb is inconsequential when compared with what might be lost otherwise.

Jim - - good luck.

73   Rhett - KE4HIH

Date: Thu, 15 Oct 1998 16:26:42 -0500 (CDT)
From: Bob Roehrig <broehrig@admin.aurora.edu>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Philco dwg needed
Message-ID: <Pine.ULT.3.96.981015162603.25470A-100000@admin.aurora.edu>
MIME-Version: 1.0
Content-Type: TEXT/PLAIN; charset=US-ASCII

Anyone have a schematic for a Philco 40-180?
Tnx

"Nostalgia is a thing of the past"
E-mail broehrig@admin.aurora.edu   73 de Bob, K9EUI
CIS: Data / Telecom   Aurora University, Aurora, IL
630-844-4898 Fax 630-844-5530

Message-ID: <36267ECF.3655DA19@erols.com>
Date: Thu, 15 Oct 1998 19:01:35 -0400
From: David Jordan <wa3gin@erols.com>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
CC: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Forced air cooling of tubes
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

Folks,

Also, one has to be careful that foaming doesn't occur of cooling will
be deminished...
in engines foaming in water as well as oil and transmission fluids leads
to overheating
and breakdown of components. There are actually additives for sale to
reduce the possibility of foaming and some engine manufacturers have
redesigned their engines to limit
to potential for foaming....what happens in engines is hot spots occur
and lead to pin holes
in the water jacket which then require engine rebuilds.

Interesting stuff,
dave
WA3GIN

Message-Id: <3.0.6.32.19981015161712.007bc8d0@mail.willapabay.org>
Date: Thu, 15 Oct 1998 16:17:12 -0700
To: Old Tube Radios <boatanchors@theporch.com>
From: David Ross <ross@hypertools.com>
Subject: CU-168 multicoupler
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

BAfolks -

Does anyone out there use a CU-168 receive multicoupler? I'm curious about making the old beast usable below 2 MCs.

73 and thanks
Dave Ross   N7EPI   ross@hypertools.com

Message-Id: <3.0.2.32.19981015191431.007f03a0@ionet.net>
Date: Thu, 15 Oct 1998 19:14:31 -0700
To: Old Tube Radios <boatanchors@theporch.com>
From: Mike Maloney <ac5p@ionet.net>
Subject: Info fm Radio Handbook,11th or 12th ed.
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

Would anyone have either of subj handbooks in their library?
Looking for a construction article published 1947 poss '48.
Thanks,
Mike   ac5p

Date: Thu, 15 Oct 1998 19:04:57 -0500 (CDT)
From: Bob Roehrig <broehrig@admin.aurora.edu>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: 6J8 needed
Message-ID: <Pine.ULT.3.96.981015190355.1462A-100000@admin.aurora.edu>
MIME-Version: 1.0
Content-Type: TEXT/PLAIN; charset=US-ASCII

Anyone have a 6J8 / 6J8G? Need one for restoration project. Will buy or trade for other tubes.

"Nostalgia is a thing of the past"
E-mail broehrig@admin.aurora.edu   73 de Bob, K9EUI
CIS: Data / Telecom   Aurora University, Aurora, IL
630-844-4898 Fax 630-844-5530

From: thompson@mindspring.com
Message-ID: <003601bdf89b$dfdd8d20$2c2f56d1@default>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: R-360 and Clegg Cruiser?
Date: Thu, 15 Oct 1998 20:28:18 -0400

I asked about the R-360 several weeks ago. When the receiver was described it sounded like the AR-88. Is there any difference between the AR-88 and the R-360?

I know the AR-88 production was sent mainly to the UK and partially to Russia but does the R-360 mean that it was used by USA forces as well?

Another friend has come across a Clegg Cruiser IIA made under the E.T. Clegg name (circa 1970 or 71). What is this? Sounds like a transverter from 6 to 2. Any ideas?

The never ending saga of old BA's continues...

Dave K4JRB

Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"
To: Old Tube Radios <boatanchors@theporch.com>
From: Sandy W5TVW <ebjr@worldnet.att.net>
Subject: Re: Forced air cooling of tubes
Message-Id: <19981016010447.PMCK27050@LOCALNAME>
Date: Fri, 16 Oct 1998 01:04:47 +0000

At 01:27 PM 10/15/98 +0000, you wrote:

>Query for the group:
>Does a prototypical air cooled power tube have a suggested
>operating temperature range? I recall for the 4CX250 family
>Eimac states a maximum operating temp. But do not recall a
>minimum.

>I recall the 4CX250 line is rated for about 250W continuous plate
>dissipation, at rated airflow (cooling.) If I can reduce the
>plate temp. by increasing cooling, (more or colder air) can the
>plate dissipation then be pushed that much harder?
>(I know I'm simplifying a lot here folks, for the sake of
>argument, lets ignore pressure drops, air turbulence, and some
>of the other gotcha's for now.)
>-Larry
>
>
>-Larry Ware

I *must* pipe in here with a couple of observations!

First, transmitting tubes *do* run hot, no doubt! I have found, over the years, that I don't think there is any such thing as "too much air cooling" unless we are talking about an absolute gale, or so much "air noise" in the transmitter's vicinity, that we can't stand the racket!

I've worked on a lot of marine transmitters that used "ceramic" radiator tubes like the 4CX250B, 8122 and the 4CX1500B. In all cases, a good flow of cooling air is essential for long tube life! There should be enough "reserve" built into the blower/air supply (cubic feet per minute) to take into account such things as loose or leaking plenums and obstructions such as dust in filters etc. and still have adequate cooling air. These tubes seem much more critical then their all glass brothers. A lot of the commercial marine transmitters had a safety system that would cut off the anode voltage if the air pressure in the plenum dropped below a certain level. Bobbi Barmore or some of the *broadcast* people out there, I'm sure, are familiar with cooling requirements/underpressure safety systems on the rigs with the *BIG* jugs!

The older 4-125, 4-250, 4-400, 4-1000, 3-400Z, 3-500Z, 3-1000Z and related types at lower plate voltages and currents *can* get by with simple convection cooling. Even so, some source of air cooling should be employed to keep the tube pin seals cool especially around the base pins. Eimac has designed sockets, chimneys, finned anode connectors, etc. to assist in keeping the seals at a tolerable temperature. Anyone who has watched any of these tubes dissipating maxium power for the first time are appalled at the bright orange color of the anodes!!! The heat *has* to go somewhere, so the need for forced air cooling. I own a Henry 2K-2 console which has a pair of 3-400Z tubes in it with chimneys and heat radiators on the anodes. I consider the blower to be too small on it. Although the rest of the
forced air system is good, I have been hunting for a slightly larger blower to remedy the situation, especially for AM 'phone operation. In the meantime, I have a 6" high capacity "muffin fan" resting on top of the PA cage pulling air upward. This helps very much until I find the replacement blower I'm looking for.
Yes, the present one is nice a quiet, but I'm interested more in extended tube life rather than a fan that "whispers"!!

That's my 2 cents worth.

73,
Sandy W5TVW

Date: Thu, 15 Oct 1998 21:15:38 -0400 (EDT)
Message-Id: <199810160115.VAA05859@smtp11.bellglobal.com>
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"
To: Old Tube Radios <boatanchors@theporch.com>
From: Andre Guibert <aguibert@sympatico.ca>
Subject: Chicago Boat Anchors

Bonsoir to All
Went to the wonderfull Science and Industry Museum and
seen why you key mad hams say that you have a wrist.
At the Marconi seen either genuine or replica of his first

transmitter with a key the size of a 60A. s.p. knife sw.
The 727 with a plexiglass floor window showing the radio
bay (Sand Boxes ?) was quite interresting.
The only place that I found some B.A`s is:
The Good Old Days, antique and collectables
2138 W. Belmont av. Chicago 60618
phone: 773-472-8837
No mill. BA`s except an ARC5 sans dynamotor in fair shape
> in the same cardboard box with a Meisner trans. with only
> one plugin coil, all for 25dlrs.
> Also a Wave Magnet receiver in a fairly good condition,
> could not find a model type, for 35dlrs.
> Has also a fairly extensive wood Zenith consoles and table
> models with almost all of them in mint condition(With
> prices to match).
> Andre
>
>
>

Message-ID: <3626A854.1290@pacbell.net>
Date: Thu, 15 Oct 1998 18:58:44 -0700
From: Ken Corwin <kenc2@pacbell.net>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
CC: Boatanchors at the Porch <boatanchors@theporch.com>
Subject: Re: RECEIVER R-22 INFO NEEDED
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

Hello, Bob -

If you email me your mailing address I will copy the schematic and wiring diagrams of subject receiver and mail them to you. I can also scan enough of the wiring diagram to provide quickly the specific information you have asked for, if you can handle a zipped TIFF file.

Would you mind telling us what you have in mind for this relatively uncommon receiver?

73, Ken Corwin, KF6NUR   <kenc2@pacbell.net> Santa Clarita, CA

Message-Id: <199810160235.TAA06239@mail3.sirius.com>
From: "Jim Carrington" <jcall@sirius.com>
To: Old Tube Radios <boatanchors@theporch.com>

Subject: Re: SP600 question / problem
Date: Thu, 15 Oct 1998 19:40:41 -0700
MIME-Version: 1.0
Content-Type: text/plain; charset=ISO-8859-1
Content-Transfer-Encoding: 7bit

Russ,
Its been awhile since I looked at the idler area you are having a problem with but yours is a common problem reported with this radio. The dial edge drive depends on friction, so you want to remove any lubrication on the friction drive contact area's . A trick that someone mentioned on the list a year or so ago to increase the friction is to apply a bit of rosen to the driving surface, the type that is used on violin bows. It reportedly worked well.

Jim

> From: Schroeder, Russell G <Russell.Schroeder@usa.xerox.com>
> To: Old Tube Radios <boatanchors@theporch.com>
> Cc: Schroeder, Russell G <Russell.Schroeder@usa.xerox.com>
> Subject: SP600 question / problem
> Date: Thursday, October 15, 1998 8:22 AM
>
> Hollowstaters,
>
> The ongoing discussion of the "silky tuning" of the SP600 forces me to
ask a
> question of this all-knowing group. I recently acquired an SP-600-JX14
and
> it has a minor problem. I am experiencing slippage between the idler and
> the edge of the dial. The idler is located between the main tuning shaft
> and the dial. Everything appears to be free turning, well lubricated.
> Cannot identify anything binding when the slippage occurs. The receiver
has
> been updated with new caps and is functioning very well. Haven't been
able
> to obtain a copy of the manual yet, which may have some information
relating
> to this problem. Any help / suggestions appreciated. Thanks.
>
> 73 Russ W2DYY
>
> Russell.Schroeder@usa.xerox.com
>

Message-Id: <199810160257.TAA18815@mail-gw6.pacbell.net>
From: "Arden Allen" <gumbear@pacbell.net>

To: Old Tube Radios <boatanchors@theporch.com>
Cc: "Old Tube Radios" <boatanchors@theporch.com>
Subject: Re: Forced air cooling of SP-600's
Date: Thu, 15 Oct 1998 19:58:36 -0700
MIME-Version: 1.0
Content-Type: text/plain; charset=ISO-8859-1
Content-Transfer-Encoding: 7bit

Wow!

I got so excited by both the Forced Air Cooling thread and the SP-600 thread I couldn't help myself. Here we go......

Al sez: > Are Thwatts the product of Thamps and Thohms?

No, Thwatts are what you get when you forget Thohms Thlaw.

Bill suggests slickening up your SP-600 some more. I suggest you *clean* up ALL of the mechanical interfaces in the tuning chain. This includes the tuning capacitor bearings and shaft (rotor) wipers. Lubrication doesn't do much good just piled on top of crud. With things apart you can tell if the tuning cap is being stiff and causing too much of a drag. When everything is able to move freely and smoothly THEN your SP-600 will tune like stroking a silken .... well I'll leave the kinky stuff for another list.

I think Bobbi inadertently alluded to the differences in forced air colling and liquid cooling when she mentioned the temperature in her kitchen has a bearing on how cool things run. Her kitchen is obviously patterned on the closed cycle sytem of cooling, i. e., when it gets too hot in the kithen the cook quits and shuts off the stove! A car's cooling system is a closed cycle sytem, it doesn't matter how fast the water is flowing through the engine and radiator but how much volume of water is being circulated in the loop per unit of time. The thermostat restricts the volumetric flow to a point required for engine/radiator differential temperature for the amount of cooling required for the engine operating temperature set point.

Air cooling is an open cycle sytem. Generally, it can be assumed that the ambient air temperature remains constant. Increasing air flow increases cooling because the cooling fin/ambient air differential is increased (as mentioned previously). It's not a linear function because of the air boundry layer on the surface of the fins that has an increasing affect with air speed causing cooling efficiency to not increase in proportion to air volume.

Arden Allen   KB6NAX   Vallejo, CA   gumbear@pacbell.net

From: Jim Lyle <jlyle@netcom.com>
Message-Id: <199810160304.UAA11819@netcom17.netcom.com>
Subject: Drake that went poof!
To: Old Tube Radios <boatanchors@theporch.com>
Date: Thu, 15 Oct 1998 20:04:32 -0700 (PDT)
MIME-Version: 1.0
Content-Type: text/plain; charset=US-ASCII
Content-Transfer-Encoding: 7bit

Hello;

In a previous post I referred to a Drake RX-2B that went POOF... Several have pointed out that they didn't recognize that model so I went and checked. What I ACTUALLY have is a Drake TR-3. Where I got the other number I'll never know (and the scary part is I was SURE when I typed it).

Thanks for all the helpful suggestions so far.

--
Jim Lyle

jlyle@netcom.COM

http://www.troubadortech.com/jlyle/

Date: Thu, 15 Oct 1998 20:31:58 -0500 (CDT)
From: Kevin Pease <hamradio@mm1001.theporch.com>
To: Old Tube Radios <boatanchors@theporch.com>
cc: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: SP600 question / problem
Message-ID: <Pine.LNX.3.96.981015203042.6372A-100000@mm1001.theporch.com>
MIME-Version: 1.0
Content-Type: TEXT/PLAIN; charset=US-ASCII

I had an SP-600 with that problrm and discovered that in the process of lubricating the dial mechanism I got oil on the idler and drive clutch and had the same problem. I had to clean off the excess oil and the problem disapeared.

Kevin Pease
WB0JZG
Mount Juliet, TN.

Message-Id: <199810160752.IAA12788@mail.compulink.co.uk>

MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
From: Bill Jarvis <maestro@cix.co.uk>
CC: <boatanchors@theporch.com>
Date: Fri, 16 Oct 1998 08:47:45 +500
Subject: Re: Forced air cooling of tubes

On 1998-10-15 skywaves@bw.webex.net said:
sk CC: Old Tube Radios <boatanchors@theporch.com>
sk Are Thwatts the product of Thamps and Thohms?

No; thamps are identical with watts. The thwatt, not used because it would not mean anything useful in that system, WOULD have been thamps x thvolts.

See what I mean about the onset of hysterics?

============   =====   =====   BILL J.   =====   =====   ============
GM8APX, qthr   Edinburgh, Scotland, UK

Cum tam juvenis eram quam nunc es, Latine loqui poteram

Net-Tamer V 1.12 Beta - Registered

Message-Id: <199810160752.IAA12769@mail.compulink.co.uk>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
From: Bill Jarvis <maestro@cix.co.uk>
CC: <boatanchors@theporch.com>
Date: Fri, 16 Oct 1998 08:47:39 +500
Subject: Re: SP600 question / problem

On 1998-10-15 skywaves@bw.webex.net said:
sk CC: Old Tube Radios <boatanchors@theporch.com>
sk Bill,
sk Could you help us with an American translation of Friar's Balsam?
sk We have a gooey liquid called Canadian Balsam we use to mount
sk microscope slides.
sk Al
sk Bill Jarvis wrote:
sk > You could risk applying VERY small dabs of Friar's Balsam; it
sk >makes things slightly stickier, for a long time, and can be
sk >removed with alcohol.
sk --
sk Al Klase - N3FRQ

sk skywaves@bw.webex.net
sk Flemington, NJ 08822
sk Web Page: http://www.webex.net/~skywaves/home.htm

Tincture of Balsam maybe? Alcoholic solution from the bark of a tree; used to be very popular inhaled in steam, for colds and influenza. (Personally I still use it!)

Dunno who Friar was. Robin Hood and Friar Balsam maybe?

```
============   =====   =====   BILL  J.   =====   =====   ============
GM8APX, qthr                               Edinburgh, Scotland, UK
```

Nescio quomodo illud in sinum meum intraverit

Net-Tamer V 1.12 Beta - Registered

From: "Don Buska" <d.buska@aaiate.com>
To: Old Tube Radios <boatanchors@theporch.com>
Date: Fri, 16 Oct 1998 07:21:48 -0500
MIME-Version: 1.0
Content-Type: text/plain; charset="us-ascii"
Content-Transfer-Encoding: 7bit
Subject: How Noisy are Solid-State DC-DC Vibrators
Message-Id: <98Oct16.073132cdt.33156@gateway.aaiate.com>

I want to start using my Gonset Superceiver in the car, but one of the things that has always bothered me is how loud the squeal is from the old mechanical DC-DC vibrator in the power supply/IF/Audio unit. I see in the latest AES catalog that they sell the solid-state replacement vibrators. Does anyone have experience with these? I currently have a Gonset 3-30 converter in the car that I run off a solid-state DC-DC converter. I have this converter in the engine compartment, but I can still hear the high pitched switching audio inside the car. So I'm already aware that even the solid-state switchers produce that wonderful high frequency audio.

So I'm just wondering how much less audio noise does a solid-state vibrator replacement have over the old mechanical jobs? Even cutting it down in half would be a step in the right direction.

Or maybe I should just turn up my stereo more often and work on destorying the high frequency response of my ears!! ;)

73

Don N9OO

Date: Fri, 16 Oct 1998 09:37:45 -0400
From: Don <71333.144@compuserve.com>
Subject: 866's Away!
To: Old Tube Radios <boatanchors@theporch.com>
Message-ID: <199810160939_MC2-5CEA-D03C@compuserve.com>
MIME-Version: 1.0
Content-Transfer-Encoding: 7bit
Content-Type: text/plain; charset=us-ascii
Content-Disposition: inline

All the 866 tubes have been distributed as fairly as I could manage. I'm sorry that the box wasn't big enough to give everyone some. I have only a few pieces of gear that use that tube and, since it wasn't a big deal, I decided to phase them out in favor of te 3B28. That's one thing I can worry a little less about...

73, Don

Message-ID: <36274E69.3CFEACA4@ix.netcom.com>
Date: Fri, 16 Oct 1998 09:47:21 -0400
From: Maurice Weinschenker <morry@ix.netcom.com>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
Subject: ntg:EM84
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

ntg (need to get) EM84 tube for restoration of old PACO cap tester.
sell-trade???
best 73 morry k3dpj

End of BOATANCHORS Digest 2260
****

>From ???@??? Sat Oct 17 01:38:19 1998
Message-Id: <199810161921.OAA15358@sco.theporch.com>
Date: Fri, 16 Oct 1998 14:19:38 CDT
Subject: BOATANCHORS digest 2261

BOATANCHORS Digest 2261

Topics covered in this issue include:

1) BA's etc. FS
by don merz <71333.144@compuserve.com>
2) 4-125 Amplifier?
by Don <71333.144@compuserve.com>
3) Re: Forced air cooling of tubes
by k6kwq@juno.com (Dick a George)
4) Eico 720
by Bocci Paul-CPB007 <CPB007@lmpsil02.comm.mot.com>
5) Identify of British entertainment radio
by Richard Post <post@ouvaxa.cats.ohiou.edu>
6) Any GRC-106 experts out there?
by Tom Norris <badger@telalink.net>
7) Shure mdl 55 microphone
by "Brickey, Peter" <peter.brickey@compaq.com>
8) ADMINISTRIVIA: Changing Email Addresses
by listown@jackatak.theporch.com (Mail List Owner)
9) Morale Radio
by Jderm740@aol.com
10) UTC fil. xfmr. pinout needed
by Chip Owens <owens@atd.ucar.edu>
11) Re: Forced air cooling of tubes
by "James C. Garland" <4CX250B@miavx1.acs.muohio.edu>
12) FS SX-100
by Sandra L Knepper <slkst29+@pitt.edu>
13) Re: Forced air cooling of tubes
by "P. J. Rovero" <provero@connix.com>
14) Re: UTC fil. xfmr. pinout needed
by Edward Zeranski <ejz@nosc.mil>
15) Re: UTC fil. xfmr. pinout needed
by Richard Post <post@ouvaxa.cats.ohiou.edu>
16) RE: Recipe for disaster
by Mark Richardson <Mark.Richardson@cisco.com>
17) Re: Recipe for disaster
by John R Bookout K7JB <k7jb@uswest.net>

Date: Fri, 16 Oct 1998 09:51:30 -0400
From: don merz <71333.144@compuserve.com>
Subject: BA's etc. FS
To: Old Tube Radios <boatanchors@theporch.com>
Message-ID: <199810160953_MC2-5CDD-7BDE@compuserve.com>
MIME-Version: 1.0
Content-Transfer-Encoding: 7bit
Content-Type: text/plain; charset=us-ascii
Content-Disposition: inline

Boatanchors Etc. FS

CONTACT: Don Merz, N3RHT: 47 Hazel Drive, Pittsburgh, PA 15228.
71333.144@compuserve.com

RCA WR-67A Test Oscillator. I think this WR-series test stuff dates from the mid to late 1950's. This is in a blue cabinet with a brushed aluminum face and blue plastic knobs. This is a typical desktop signal generator covering LF hrough HF frequencies. The styling matches other RCA WR-xx instruments. This one looks good, powers up and seems to work okay. But my guess is that it could use a recap job. As-is. $25

RCA WA-54A Audio Oscillator. This is the matching audio oscillator for the signal generator above. Looks very good or better. With tuning eye. Untested. As-is. $25

RCA WR-89A Crystal Calibrated Marker Generator. This is the matching marker generator for the signal generator above. Looks very good but one plastic pin jack is broken. Untested. As-is. $10

Heathkit MM-1 VOM. Classic workbench analog VOM with mirrored scale, circa 1963. With probes. Works fine except Rx1 range will not go all the way to zero. I've had this one year and it is clear that it will never be used by me. With original manual. $18

Patterson PR-10 1934 shortwave reveiver. A model of this famous 1930's receiver was in the 1997 CQ boatanchor calendar--but this one is much nicer than the one in the calendar. It's in a black wrinkle desk cabinet. The front panel is excellent. Cabinet is good but could use some restoration. the chrome chassis is pitted badly. The radio works but the tuning dial drve wheels have crumbling rubber on their edges. With copy of some Patterson Literature that includes PR-10, Riders data, detailed hand-drawn schematic and other info. Requires a speaker with a 1500 ohm field coil which I do not have. $280

E.H. Scott Allwave 12 Deluxe single dial short wave receiver s/n D192. This is a 1931-vintage 12-tube chrome chassis single dial radio with separate power supply/audio chassis. This is currently in a Majestic console cabinet which is somewhat scratched and scuffed. But the Scott chrome is VG or excellent. Complete except for 3 knobs missing. Includes god Wunderlich Detector tube. Most other tubes are Arcturus globes. Audio amp has 2 globe 45's in it. Untested. Needs power cord. Looks okay. With manual copy and lots of other Scott info. $380 picked up in Pittsburgh, PA or $425 plus actual shipping costs. Will ship with or without cabinet.

HRO shipping crate. This is an original HRO shipping crate for a pre-war desktop HRO. It is all wooden and a nicely labeled with National and the NC logo plus other details including "Serial Number R83." Empty, of course. From the estate of 8AIG. I'd love to keep it but have no space and I'm tired of seeing it sitting in the laundry room. One of only 2 that I know of anywhere on earth. $90

Squires-Sanders FM-Alert monitor receivers. Tunable FM monitor radios, one covering hi-band and one lo-band. Tunable with slide-rule dial or 2-channel crystal selectable from front panel. Very pretty styling. With original owners manuals that unfortunatley have no schematics or service info. One works and one doesn't. Both are all original and look great. $45/pair

Heathkit UT-1 Power Supply. Used with Comanche/Cheyenne rig and works with lots of other Heath gear. Plastic Heathkit logo is missing. Paint is original and good with some light scratches. No modifications. Complete. Untested. $49

Akai 4000D 3-head reel-to-reel tape deck. Nice machine in fine working condition. With Sony NR-115 dolby noise reduction unit for very low noise recording. This setup works very well together though the Sony unit could be used with any tape deck. With original manuals and sexy Akai metal take-up reel with the work "AKAI" stamped in the metal. I have used this a bit and would keep it but I recently traded for some older Ampex rackmount gear. This unit is in a wooden cabinet--it is not a rackmount. $90 shipped to your door.

Dokorder 7140 3-head, 3-motor, reel-to-reel tape deck. 4-channel machine with separate record on each channel, simultaneous playback/record, sound-on-sound, adjustable delay echo. VU meters for all 4 channels. Separate mic and line inputs and level controls for all 4 channels. Accepts 7" reels, not 10-1/2. It should have 2 speeds--7-1/2 IPS and 3-3/4 IPS but it will only go at 3-3/4 IPS. All other functions working as designed. This must have been a REALLY expensive tape deck in its day. $40 as-is. Big and heavy but not a rackmount.

Heathkit Reel-To-Reel Tape Rewinder. This is in the original wooden case with some scratches but still very nice. $10

Military RA-1B HF receiver made by Bendix. This is a somewhat rare WWII-era Navy receiver covering .15 to 15mc in 6 bands. The radio is in very good or excellent condition but the band change knob is cracked. A few mods have been done with no unoriginal holes and the original parts are taped inside the case. With homebrew power supply, correct power connector and manual copy. Untested but presumed to work. Band change linkage does not engage the way it should and bands don't change. The tube lineup is 1-6K6G, 5-6K7G, 1-6R7G and 1-6L7G. $200

CONTACT: Don Merz, 47 Hazel Drive, Pittsburgh, PA 15228
71333.144@compuserve.com

Date: Fri, 16 Oct 1998 09:48:27 -0400
From: Don <71333.144@compuserve.com>
Subject: 4-125 Amplifier?
To: Old Tube Radios <boatanchors@theporch.com>
Message-ID: <199810160951_MC2-5CEE-8ADB@compuserve.com>
MIME-Version: 1.0
Content-Transfer-Encoding: 7bit
Content-Type: text/plain; charset=us-ascii
Content-Disposition: inline

I have this RF deck here with 2 4-125A's in it. It is very nicely built, obviously commercial or military. But there are no markings on it except a

date stamp "1963" and "35-40MC." I'd like to move this up to 6 meters,
adding a power supply and etc. Has anyone seen an article or construction
project that follows similar lines? I am so lazy that I'd like to find
something that I could approximately copy, rather than re-invent this.

Any help appreciated.

Thanks.
73, Don

To: Old Tube Radios <boatanchors@theporch.com>
Cc: boatanchors@theporch.com
Date: Thu, 15 Oct 1998 13:02:38 +0000
Subject: Re: Forced air cooling of tubes
Message-ID: <19981016.065908.6406.0.k6kwq@juno.com>
From: k6kwq@juno.com (Dick a George)

You can always exceed the plate dissipation of any tube but more
important is to keep it it in the linear operatig curve.

K6KWQ@JUNO.COM
EX WA6JOX
12 VOLT RADIOS ARE FOR SISSEYS
REAL RADIOS CAN KILL YOU!

On Thu, 15 Oct 1998 13:27:15 +0000 "Lawrence R. Ware"
<lrware@pipeline.com> writes:
>At 12:26 10/15/1998 -0500, Bill Hawkins wrote:
>>Ah, looks like we have a hot topic. :-)
><ouch!> :-)
>
>>There oughtta be enough errors in that to bring at least one
>>correction ...
>Naw, sounds fine to me. A pretty good explanation of a very
>complex subject. Along with Bobbie's notes some good information
>has been passed along.
>
>Query for the group:
>Does a prototypical air cooled power tube have a suggested
>operating temperature range? I recall for the 4CX250 family
>Eimac states a maximum operating temp. But do not recall a
>minimum.
>
>Would it be safe to conclude:
>(With the exception of mercury rectifiers (866, etc.) and other
>special purpose tubes, which need to be heated to operating temp.
>before use.)

>That running the tube as close to ambient as practical is
>a *good thing*? For receiver tubes this seems to be
>almost common sense, but I wonder if other issues related to
>transmitter tube performance have to be considered?
>I recall the 4CX250 line is rated for about 250W continuous plate
>dissipation, at rated airflow (cooling.) If I can reduce the
>plate temp. by increasing cooling, (more or colder air) can the
>plate dissipation then be pushed that much harder?
>(I know I'm simplifying a lot here folks, for the sake of
>argument, lets ignore pressure drops, air turbulence, and some
>of the other gotcha's for now.)
>-Larry
>
>
>-Larry Ware
>lrware@pipeline.com
>Orlando, Florida
>
>

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or call Juno at (800) 654-JUNO [654-5866]

Message-ID: <B79009C85505D211B11100805FA784C8D1D68E@s-il02-k.comm.mot.com>
From: Bocci Paul-CPB007 <CPB007@lmpsil02.comm.mot.com>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Eico 720
Date: Fri, 16 Oct 1998 09:15:36 -0500
MIME-Version: 1.0
Content-Type: text/plain

Howdy Folks
An orphaned Eico 720 arrived at my door step recently. I've done the clean up and initial testing and found an oscillation in the buffer stage on 40 meters. Before digging any deeper, I feel the need for documentation. Has anybody got a manual they'd copy for me?

73 es ZUT
Paul, K9NO
cpb007@email.mot.com

Message-Id: <v03007801b24d11c0c10a@[132.235.46.71]>
Mime-Version: 1.0

Content-Type: text/plain; charset="us-ascii"
Date: Fri, 16 Oct 1998 11:27:25 -0400
To: Old Tube Radios <boatanchors@theporch.com>
From: Richard Post <post@ouvaxa.cats.ohiou.edu>
Subject: Identify of British entertainment radio

BA radio cognoscenti,

Have been asked to identify the British entertainment radio pictured at the following URL. The jpeg is the front view. I later received the BMP which is the back view.

http://ouvaxa.cats.ohiou.edu/~post/PUB/

According to the owner,
>
>>The radio was probably purchased in England - that's all I know about it's
>>history. The only details marked are that it's British Registered Design
>>861814, and that it uses the following Marconi valves: X78, U78, N78, W77
>>and DH77.

>>I didn't mean to ask you to do any research. I was just hoping you could
say
>>something like "Try the web site for the International Museum of
Mysterious
>>Old Radios" or something like that.
>>And the name's Steve.
>>Thanks.

Subject: Re: mystery radio

>>Hi Steve,
>
>>That's why I asked for the voltage (240, I'll bet) and frequency range. I
>>was guessing British or French from the styling. With your permission, I
>>will query the Boatanchor list. There are several British participants on
>>that list. If they cannot identify it, they'll probably be able to tell me
>>who could. That RCA Victor logo (his Master's Voice) on the back is sort
>>of a dead giveaway however. It's a bit faint in the pic but I assume that
>>is what I am looking at (British Victor)
>>
>>Rich

>I'm not sure what the Boatanchor list is but go ahead. Thanks!

---

webmaster - Museum of Radio and Technology
>   http://ouvaxa.cats.ohiou.edu/~post/MRT/
>   mailto:postr@ohiou.edu
>
>   personal Boatanchor Pix website - KB8TAD
>   http://ouvaxa.cats.ohiou.edu/~post/PIX/BA.html

Message-Id: <3.0.5.32.19981016105903.00a89a30@mail1.telalink.net>
Date: Fri, 16 Oct 1998 10:59:03 -0600
To: Old Tube Radios <boatanchors@theporch.com>
From: Tom Norris <badger@telalink.net>
Subject: Any GRC-106 experts out there?
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

Just got in a AM3349/GRC-106 to complete my GRC-106 non-A setup. The manuals and such are on the way, but in the meantime, I have this problem with the amp. (The RT works fine.)

The problem: When power is applied to the amp, the DC/AC invertor starts up, the fans start, and then all dies, then starts, then dies at random intervals. Sounds a lot like an old 20's Curtiss radial engine plane (the kind with no throttle...) coming in for a landing. Where would the first place be to look for the cause of this? If I remember correctly, the DC/AC invertor is on the top of the case, but with no diagram yet, it is hard to do much. Right now the amp doesnt do much else other than that. Never stays on long enough to see if the HV supply will start. I hope to be able to rip into it this weekend if I can shake this flu......

It has a decent stiff power supply, nary a dip in voltage when it powers up.

Speaking of diagrams, does anyone have one on the 1A6 (freq divider) module for the RT-662? I have most of a manual, but no diagram on that module. Also, has anyone successfully modified the FREQ VERNIER control to operate on TX? The circuit description seems to look as if it would work, but before I try I thought I would ask.

Also need a length of power cable, the heavy 'military' shielded power cable such as this set and the GRC-19, et al use. Right now am using a pair of ugly beat up #6 cables I had lying around to power the amp.

Used to have dozens of feet of the stuff, but have given it all away over the past decade or so. It would make the set look a lot better. :-)

Thanks all

Please visit The Mil List for info on military communications gear:

HTTP://www.telalink.net/~badger/millist/mi.html

This is a non-comercial endeavor strictly for providing
info for those who have a need for it - and intertainment
for those who dont....

ANY and ALL Contributions Welcome.
****
 Tom Norris KA4RKT
 badger@telalink.net   Nashville, Tennessee, USA

****

Message-ID: <418B8B7ACE69D111879B00805F6F281DF83BBA@exccup-25006.mis.tandem.com>
From: "Brickey, Peter" <peter.brickey@compaq.com>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Shure mdl 55 microphone
Date: Fri, 16 Oct 1998 09:09:29 -0700
MIME-Version: 1.0
Content-Type: text/plain

Hi,

I recently picked up a Shure model 55 microphone which needs either a new element or someone who can re-center the coil as the coil is lose. It also needs
new sponge rubber cushions and the terminals that the coil connects to have broken
lose from the frame - they need to be replaced.

Does anyone on the list have any leads to such a person or know if Shure offers this service?

Thanks and 73's   Peter

Message-Id: <199810161615.LAA23124@jackatak.theporch.com>

From: listown@jackatak.theporch.com (Mail List Owner)
To: Old Tube Radios <boatanchors@theporch.com>
Subject: ADMINISTRIVIA: Changing Email Addresses
Date: Fri, 16 Oct 98 11:15:01 CDT

Gang-

This periodic post is intended to help subscribers whose email address has changed, preventing posting or receipt of the list.

If you change ISP (InterNet Service Provider), simply send me an email advising the change, and I will do my best to implement the change quickly.

For those unfortunates, whose ISP has made a change without advising their customers of the potential impact of that change on subscribers to email lists like the boatanchors, where one must be a subscriber to post to the list, try to follow along...

Under some circumstances, the changes to your email address are "transparent" to you, but prevent posting. I get error notification for these kinds of problems, and I try to work them out. However, I may miss one, and on this end, the process is anything BUT automatic.

You have a bigger stick than I do. You and your ISP have the primary responsibility to repair the problems caused by the change at the ISP. I have zero leverage with your ISP, and you have great leverage.

Most ISP maintain a customer service department to help with problems like these. This should be your first line of support for email problems. I am happy to assist and consult, but try to understand that when your ISP makes a change to their email handler, and that change prevents you from posting to the boatanchors list, I can help, but resolving this problem is your responsibility, working with your ISP. I am but a volunteer, contributing my time to administer the list.

Thank you for your attention.
--
73
Jack, W4KH/Mobile - - - BoatAnchor Mailing List Archiver/Owner - - -
listown@jackatak.theporch.com - "Plus ca change, plus c'est la meme chose"
"Il n'y a que les idiots qui ne changent jamais d'idee"
Fri Oct 16 11:15:00 CDT 1998

From: Jderm740@aol.com
Message-ID: <384a2cc1.36276f3d@aol.com>

Date: Fri, 16 Oct 1998 12:07:25 EDT
To: Old Tube Radios <boatanchors@theporch.com>
Mime-Version: 1.0
Subject: Morale Radio
Content-type: text/plain; charset=US-ASCII
Content-transfer-encoding: 7bit

Hi All

Has anyone heard of an RBO receiver? It was supposed to be a morale receiver for the troops during WW2. Mfg.unknown. Someone I know needs a schematic. The party in question is on the left coast while I am on the right. Any help would be appreciated but I'm not going to call Ca for more details because he gave me all he knows about it when last we spoke.

Thanks for any help.

Jack   Jderm740@aol.com

From: Chip Owens <owens@atd.ucar.edu>
Message-Id: <199810161617.KAA05017@ale.atd.ucar.edu>
Subject: UTC fil. xfmr. pinout needed
To: Old Tube Radios <boatanchors@theporch.com>
Date: Fri, 16 Oct 1998 10:17:39 -0600 (MDT)
MIME-Version: 1.0
Content-Type: text/plain; charset=US-ASCII
Content-Transfer-Encoding: 7bit

The local surplus store yielded up a nice filament transformer yesterday. It is a UTC CG-122. This is a 7.5/6.3 volt secondary transformer. It says so on the slip of paper attached with tape...

Can someone provide the pinout information on this one?

There are 11 terminals 1,2,& 3 in one group, 4,5,& 6 in another group, and then 7 thru 11 as a third group.

Any help appreciated!

Thanks, Chip

Message-Id: <v03102802b24d1c3c47bd@[134.53.4.141]>
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"
Date: Fri, 16 Oct 1998 11:30:28 -0500

To: Old Tube Radios <boatanchors@theporch.com>
From: "James C. Garland" <4CX250B@miavx1.acs.muohio.edu>
Subject: Re: Forced air cooling of tubes

>>I recall the 4CX250 line is rated for about 250W continuous plate dissipation, at rated airflow (cooling.) If I can reduce the plate temp. by increasing cooling, (more or colder air) can the plate dissipation then be pushed that much harder?

>>-Larry Ware
>>lrware@pipeline.com

Hi Gang,

Here's my two cent's worth on this interesting discussion. In my experience, tube ratings for plate voltage, plate current, and power dissipation are usually coordinated so that the maximum ratings are attained simultaneously. For example, consider the 8877/3CX1500A7 triode, which has recommended maximum ratings of:

Plate Voltage: 4000V
Plate Current: 1 Ampere
Plate Dissipation: 1500 Watts

Running this tube at maximum power would result in an amplifier with 4000 Watts input power (4000V x 1Amp). Assuming 63% efficiency (typical efficiency for class AB2 service) results in an output power of about 2500Watts. The difference between input and output power is thus 4000 W - 2500 W = 1500 W, which is the maximum plate dissipation.   Thus all maximum ratings are reached at the same time.

It is important to realize that tube maximum ratings are based on fundamental limitations of the tube construction. For example:

Maximum Plate Voltage: a limitation which minimizes X-ray emission, secondary bombardment of electrons off anode structure, internal arcing, non-linear operating characteristics.

Maximum Plate Current: a limitation which is set by the surface area of the cathode, which determines how many electrons per second can be thermionically emitted from the cathode without overheating it.

Maximum Plate Dissipation: a limitation needed to keep the ceramic-metal seal ion the tube body from overheating.

The question raised by Larry is whether the recommended maximum ratings can be exceeded by using a bigger blower to cool the tube, thus allowing it to dissipate more than 1500 Watts of heat without overheating the tube's metal-ceramic seals. For the 8877, the answer is no. While a bigger blower might allow the 1500 W plate dissipation to be exceeded, taking advantage of that extra dissipation would require the user to exceed the tube's maximum plate current or plate voltage rating.

I remember talking a few years ago to Bob Sutherland W6PO at EIMAC about an EIMAC experiment where an 8877 was run at 10 KW input, more than twice the maximum power. A huge blower forced air through the tube to keep it from melting, and the plate current was run at 2 Amperes and the plate voltage at 5000V. The tube worked for an hour or so, and then gave up. When it was dissected afterwards to determine the failure mode, cathode evaporation caused by the excessive electron emission had contaminated the grid structure, and the cathode itself had been irreversibly damaged.

There are, of course, exceptions to every rule. Consider now the popular 3CX800 triode, the "little brother" of the 8877. The 3CX800 is rated at:

plate voltage: 2200 V
plate current: 0.6 Ampere
plate dissipation: 800 Watts

At maximum ratings, the input power is thus 2000 V x 0.6 A = 1320 Watts. Assuming 63% efficiency, the output power is thus .63 x 1320 = 832 Watts, which means that the plate is dissipating only 488 Watts at the maximum rating. In other words, even though the tube is rated at 800 W plate dissipation, in practical terms one can only run it at about 500 W dissipation without exceeding other tube parameters.

Here's the bottom line: (1) Generally, maximum tube ratings should not be exceeded. Doing so may seem to work in the short term but can have a disasterous consequence on the life expectance of the tube. (2) There is no point in using a bigger blower than needed to cool the tube to its specified rating. The tube won't last a minute longer (so long as its ratings aren't being exceeded), and life is too short to put up with unneeded blower noise.

There are, of course, many subtleties. I refer List members to last year's interesting discussion about cooling the 4CX1000A in the Collins 30S-1, and the way a small low-speed (quiet) blower was used to cool the tube by taking account of the laminar flow of air through the tube fins.

73,

Jim Garland W8ZR

Date: Fri, 16 Oct 1998 12:34:14 -0400 (EDT)

From: Sandra L Knepper <slkst29+@pitt.edu>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: FS SX-100
Message-ID: <Pine.GSO.3.96L.981016123318.23188B-100000@unixs3.cis.pitt.edu>
MIME-Version: 1.0
Content-Type: TEXT/PLAIN; charset=US-ASCII

SX-100 looking for a good home. Still has the factory tags, 100 Khz calibrator. A very nice receiver - $300 shipped.

Dave, W3ST
Publisher of the Collins Journal
Homepage: http://www.pixi.com/~jenkins/collins

Date: Fri, 16 Oct 1998 12:43:47 -0400 (EDT)
From: "P. J. Rovero" <provero@connix.com>
To: Old Tube Radios <boatanchors@theporch.com>
cc: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Forced air cooling of tubes
Message-ID: <Pine.BSI.3.95.981016124241.17260A-100000@comet.connix.com>
MIME-Version: 1.0
Content-Type: TEXT/PLAIN; charset=US-ASCII

While last years discussion of cooling linear amp tubes *was* interesting, the one about running metal octal tubes inverted in "cooling reservoirs" was *more* interesting...

P. J. "Josh" Rovero   email: provero@connix.com
Oceanographer   work: rovero@sonalysts.com
Meteorologist   radio: KK1D
Curmudgeon at Large   web: http://www.connix.com/~provero/

Message-Id: <3.0.1.32.19981016094402.007aae30@marlin.nosc.mil>
Date: Fri, 16 Oct 1998 09:44:02 -0700
To: Old Tube Radios <boatanchors@theporch.com>
From: Edward Zeranski <ejz@nosc.mil>
Subject: Re: UTC fil. xfmr. pinout needed
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

At 10:17 AM 10/16/98 -0600, you wrote:
>The local surplus store yielded up a nice filament
>transformer yesterday. It is a UTC CG-122......

>Can someone provide the pinout information on this one?
>Any help appreciated!
Thanks, Chip

Try this URL, they have mucho UTC info under 'White Papers":
 http://www.kenetek.com/   also try :
 http://www.optind.com/

Message-Id: <v03007804b24d2f94c746@[132.235.46.71]>
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"
Date: Fri, 16 Oct 1998 13:20:48 -0400
To: Old Tube Radios <boatanchors@theporch.com>
From: Richard Post <post@ouvaxa.cats.ohiou.edu>
Subject: Re: UTC fil. xfmr. pinout needed

It's a CG (commercial grade) filament transformer according to my 1957
Radio Master.
Can't help with pin-out but specs are 10 amp secondaries,   6.3 and 7.5 volts

Shouldn't be too hard to figure out the pins on that.

Rich

>Date: Fri, 16 Oct 1998 09:44:02 -0700
>X-Sender: ejz@marlin.nosc.mil
>
>At 10:17 AM 10/16/98 -0600, you wrote:
>>The local surplus store yielded up a nice filament
>>transformer yesterday. It is a UTC CG-122......
>
>>Can someone provide the pinout information on this one?
>>Any help appreciated!
>Thanks, Chip
>
>Try this URL, they have mucho UTC info under 'White Papers":
> http://www.kenetek.com/   also try :
> http://www.optind.com/
>

Message-Id: <3.0.32.19981016113825.006c9b94@lint.cisco.com>
Date: Fri, 16 Oct 1998 11:38:26 -0600
To: Old Tube Radios <boatanchors@theporch.com>
From: Mark Richardson <Mark.Richardson@cisco.com>

Subject: RE: Recipe for disaster
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

>>I recall the 4CX250 line is rated for about 250W continuous plate
>>dissipation, at rated airflow (cooling.) If I can reduce the
>>plate temp. by increasing cooling, (more or colder air) can the
>>plate dissipation then be pushed that much harder?

>>-Larry Ware
>>lrware@pipeline.com

It is possible to run tubes at higher that rated plate dissipation, for instance the 3CX2500 is rated 2500 watts plate dissipation. Sea Level , 36 CFM , .6 inches back pressure. It is also rated to 4000 watts and air flow requirements go up to 67 CFM at 1.2 inches back pressure. At 5000 feet the air flow for 4000 watts is 80 CFM at 1.45 inches back pressure.

The big problem is not getting enough air to cool the plate, but filament-cathode structure, grid, screen etc. usually can not stand the increased current, emissions and so fourth. Do not exceed specs. for plate voltage, current, grid, screen current, and filament emissions. Otherwise tube life will suffer!

Mark
W7HPW

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      /  Don't take life so seriously, __/
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Message-ID: <36279CAB.DA792EDB@ptld.uswest.net>
Date: Fri, 16 Oct 1998 12:21:15 -0700
From: John R Bookout K7JB <k7jb@uswest.net>
MIME-Version: 1.0

```
To: Old Tube Radios <boatanchors@theporch.com>
CC: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Recipe for disaster
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

Build conservatively, ie; (pair of 4-1000A's) run legal limit -- last a
life time!

Mark Richardson wrote:
>
> >>I recall the 4CX250 line is rated for about 250W continuous plate
> >>dissipation, at rated airflow (cooling.) If I can reduce the
> >>plate temp. by increasing cooling, (more or colder air) can the
> >>plate dissipation then be pushed that much harder?
>
> >>-Larry Ware
> >>lrware@pipeline.com
>
>         It is possible to run tubes at higher that rated plate dissipation, for
> instance the 3CX2500 is rated 2500 watts plate dissipation. Sea Level , 36
> CFM , .6 inches back pressure. It is also rated to 4000 watts and air flow
> requirements go up to 67 CFM at 1.2 inches back pressure. At 5000 feet the
> air flow for 4000 watts is 80 CFM at 1.45 inches back pressure.
>         The big problem is not getting enough air to cool the plate, but
> filament-cathode structure, grid, screen etc. usually can not stand the
> increased current, emissions and so fourth. Do not exceed specs. for plate
> voltage, current, grid, screen current, and filament emissions. Otherwise
> tube life will suffer!
>
>                         Mark
>                         W7HPW
>
>
>        .---------------------------------.
>       /  Don't take life so seriously, __/
>      /       it's not permanent..     /
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>           | |  | | \  '.
>          c__; c__;  '-..'>.__
```

--
Best 73's

John K7JB

E-Mail: k7jb@ptld.uswest.net
Packet: K7JB @ K7JB.nwor.or.usa.na

BOAT ANCHORS.
Radio Receivers:
CV-157/URR SSB ADAPTER
R-390/URR COLLINS S/N 4651
R-390A/URR EAC   S/N 1475
R-390A/URR Imperial S/N 2168
SP-600-JX-17   S/N 20338 Diversity

Transmitters:
CE-100V S/N E 209
CE-100V S/N E 670

End of BOATANCHORS Digest 2261
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